Form DEPLW0829

Maine Department of Environmental Protection
General Permit Notice of Intent (NOI)
Aquatic Herbicides for the Control of Invasive Aquatic Plants

NOTE: A copy of this NOI Form must be filed with each civil jurisdiction in which the treatment will be located (municipal office, LURC Regional Office, County Commissioner's office, as appropriate); with MDIFW, MNAP, MASC, USFWS, and NOAA Fisheries, and with any public drinking water suppliers who use the waterbody.

This NOI is subject to General Permit #MEG150000 / WDL #W-009004-5G-A-N, issued by the Department of Environmental Protection (DEP) for the herbicidal treatment of invasive aquatic plants. Project specific information may be obtained from DEP staff listed in Section 1 below:

1. DEP Invasive Aquatic Species Program (IASP) Contact

Name: John McPhedran

Mailing address: DEP, SHS 17
Street Address

Augusta	Maine	04333
Town	State	ZIP

Telephone: 207.287.6110 E-mail: john.mcphedran@maine.gov

2. Agent Managing the Project (if different from IASP Contact)

Name/Affiliation: _____

Mailing address: _____
Street Address

Town	State	ZIP

Telephone: _____ E-mail: _____

3. Licensed Applicator Information

Name/Affiliation: Gerald N. Smith/Aquatic Control Technology, Inc

Mailing address: 11 John Road
Street Address

Sutton	MA	01590
Town	State	ZIP

Telephone: (508) 865-1000 E-mail:GNSmith@aquaticcontroltech.com

Current Maine Board of Pesticides Control License Number: 40743 expires 12/2010

4. Statement of Significant Need to Control Target Species

Name of primary target species (must be State-listed or determined by DEP to be invasive): Eurasian water milfoil *(Myriophyllum spicatum)*
Names of other invasive plants, if applicable:_____
Reasons for this project:

- ☒ The target population of aquatic plants cannot be controlled by non-chemical means
- ☒ High potential for the plant(s) populations to spread rapidly
- ☒ Probability of significant disruption of aquatic habitat caused by the target species
- ☒ The treatment is required to enable a broader scale plant control project under an aquatic plant management plan
- ☒ The treatment is needed to restore habitat and/or that failure to rapidly control the species threatens to result in significant environmental harm to this or other natural resources.
- ☒ Other Eurasian water milfoil is widely believed to be one of the most problematic invasive aquatic plants in the United States. Eurasian water milfoil out-competes native vegetation, displaces both game and non-game fish populations, and wreaks havoc with surface and water-contact recreational uses. IASP staff determined that herbicide treatment is necessary to achieve maximum suppression of the target plant to prevent spread to other waters and to allow the best chance of controlling the infestation in Salmon Lake with manual means.

Append additional detail as needed. Please see appended additional information regarding statement of significant need.

Describe past treatment efforts and how those affect the decision to perform an herbicide treatment; why are non-herbicidal means not considered sufficient: Eurasian water milfoil (EWM) was discovered in the outlet dove of Salmon Lake in August 2008. After species confirmation, IASP staff initiated the State's *Rapid Response Plan for Invasive Aquatic Plants, Fish, & Other Fauna*. Spread prevention measures undertaken by IASP are detailed in the appended information referenced above.

EWM removal efforts by the IASP in late 2008 and May into July 2009 consisted largely of manual removal by divers augmented by use of benthic barriers. In August and September 2008 IASP divers searched for and removed plants on four days before visibility became obscured by algae growth. Divers logged 43 hours of dive time in 2008 and removed approximately 118 plants; two benthic barriers were deployed in 2008.

Dives resumed in May 2009 and were conducted mostly by IASP divers with assistance from two USFWS divers and one volunteer Belgrade Lakes Association diver. Five dives occurred from May 19 until July 1 totaling 66 hours of diver time. A total of 325 plants were removed (61, 27, 39, 79, and 119 on respective dives) in 2009. The two benthic barriers placed in 2008 were removed and several new barriers were installed.

The IASP's original plan for 2009 removal efforts was to first mark the location of each EWM plant with a buoy, remove the plant, and later return to place a benthic barrier on the plant location to prevent regrowth. We hoped our plant removal efforts of 2008 would effectively reduce the population to make this approach feasible.

However, IASP staff found a greater number of plants during 2009 dives than anticipated. We began by marking each plant location but even on the first dive didn't have enough buoys to

mark all plants. In addition, the EWM was widely scattered in the cove – a plant here, a plant there – with only a few patches of plants. Adding benthic barriers to the control effort would require many small (e.g., up to 10 ft X 12 ft) barriers. Deployment of one barrier in particular showed a complication of using the small barriers when divers found and removed 21 small sprouts along the edge of the barrier two weeks after installation. While divers attempted to remove all roots with the plant before placing the barrier, clearly that wasn't achieved and the roots ran several feet or more from the original plant location.

Larger benthic barriers would therefore be needed to effectively control the target plant. Additionally, the barriers would need to cover more than one-half of the approximately six acre cove because the current EWM growth is widely scattered over approximately 3.5 acres of the cove.

While cost of installing barrier over such a large area would be considerable ($1.00 - $1.50 per square foot for materials and installation if done by a contractor), there are other reasons why this is not the preferred technique at this time. In addition to depriving the plant of sunlight, a properly installed benthic barrier physically crushes the plant. Efficacy of the barriers would be compromised by the presence of large boulders and to a lesser extent stumps in the outlet cove. The pillowing created by the boulders in the cove could provide refugia for EWM plants. Even without these logistical complications, covering three acres or more of the cove with benthic barrier would kill native plants and benthic fauna in addition the EWM. The outlet cove alone supports at least 19 species of vascular aquatic plants.

Other treatment options previously used (circle all that apply):

MANUAL REMOVAL (circled) BENTHIC BARRIERS (circled) MECHANICAL HARVESTING OTHER HERBICIDES List_____

Append additional detail as needed.

5. This treatment:

☒ Requires rapid response in advance of developing a management plan because the EWM infestation is still in the early stages and immediate action is needed to prevent spread of the plant to the remainder of Salmon Lake, downstream waters, and other waterbodies. Great Pond, just downstream from Salmon Lake, has many acres of potential habitat for EWM.

IASP initiated its Rapid Response Plan when EWM was discovered in the outlet cove in August 2008. A formal management plan has not been developed but the rapid response to date incorporates most, if not all, elements of a compreshensive management plan.

Please see appended information: chronology of IASP's response to the infestation.

6. Topographic or similar map extending one mile beyond treatment site(s)

Directions to Treatment Site(s) Take Rte 27 north from downtown Augusta for approximately 11 miles. Turn right on Rte 8 north and follow approximately 4.5 miles (note that Rtes 8 and 11 are together for the first +/-3 miles of the 4.5 until Rte 8 takes off to the left. Be sure to follow Rte 8). Turn right on Spaulding Point Road and follow 0.2 mile until a left

turn on the road for the DIFW boat access (sign is posted). The cove being treated is just west of and visible from the boat ramp. Using Google Maps, get directions to Boat Access Lane, Belgrade, Maine. See appended aerial photo (Figure 1) and DeLorme Gazetteer Map 20.

7. Waterbody Map showing monitoring location(s) and area(s) to be treated if spot treatments are proposed

See Figure 2 for aerial photo indicating monitoring locations in Salmon Lake, Hatchery Brook, and downstream in Great Pond.

8. Treatment will include:

☒ Spot Treatment(s) subsurface
☒ Spot Treatment(s) surface
☐ Whole-lake

9. Description of *each* area to be treated (number areas keyed to map)

Area ID label/# Salmon Lake outlet cove as indicated on Figure 1.
Area to be treated 6.3 ac (outlet cove); 25,549 square meters
Range of Depths 0-7.1 ft (0-2.2 m) Volume: 27,881 cubic meters
Mean Depth 3.5 ft (1.1 m)
Substrate(s): Sand X Gravel X Mud/silt X Organic___ Other Boulder and cobble

Describe any special application methods (such as use of containment barriers) or timing issues: Will attempt to drawdown lake levels prior to late August treatment and time treatment for dry weather forecast. Fragment nets currently block 3/4 of the mouth of the cove to Salmon Lake. Will drape poly plastic over the existing nets to reduce likelihood of dissipation of herbicide out into Salmon Lake. Will also reduce size of current opening between nets with floating boom and poly plastic to further reduce likelihood of dissipation into the lake.

10. Other Waterbody Characteristics (identify on waterbody map)

Active outlet (likely to be flowing during treatment) Yes X No___
Number of permanent streams which may be affected by treatment one
Other physical aspects that affect operations (including hydrologic considerations) Lake water from McGrath Pond and Salmon Lake flows through the Salmon Lake outlet cove to the outlet stream, Hatchery Brook (Figure 1 shows Salmon Lake; McGrath Pond lies to the north of and is contiguous with Salmon Lake; see DeLorme map 20). IASP staff will work with the Belgrade Dams Committee and within the DEP Water Level Order to manage water levels and outlet flow before and during treatment to achieve efficacy on the target plant and to allow minimal movement of the herbicide to downstream waters.

11. Non-target plant species, and community characteristics

The Salmon Lake outlet cove has a relatively large number of aquatic plant species. The following species were observed by IASP divers on July 1, 2009.

Myriophyllum tenellum	*Pontedaria cordata*	*Utricularia macrorhiza*
Potamogeton pusillus	*Potamogeton robbinsii*	*Potamogeton spirillus*
Potamogeton amplifolius	*Potamogeton zosteriformis*	*Eleocharis robbinsii*
Eleocharis acicularis	*Potamogeon perfoliatus*	*Nuphar variegata*
Sagittaria cf *graminea*	*Isoetes sp*	*Vallisneria americana*

Elodea canadensis	*Nitella sp*	*Sparganium sp*
Ceratophyllum demersum	*Ranunculus aquatilis*	*Bidens beckii*

Aquatic plants are found throughout the outlet cove at varying densities. The IASP will conduct aquatic plant monitoring per the General Permit in mid-August (prior to the treatment). Twelve of the 18 aquatic vascular plants in the list above are monocots while dicots are generally more susceptible to 2, 4-D (although 2, 4-D may kill monocots with broad leaf morphology). The presence of native monocots combined with the expected seed bed of native plants bode well for rebound of the native plant community the year after treatment.

12. Has the waterbody previously been treated with aquatic herbicides for plant control

Yes__ __ No__X_

If yes, indicate where treatment(s) occurred and provide dates treated, herbicides used, amounts applied:

13. Herbicides to be used:

a. Fluridone:

Solid ____ Active ingredient; Current EPA Numbers _____

Liquid _____Active ingredient; Current EPA Number _____

b. Diquat dibromide: N/A

_____ % Active ingredient; Current EPA Number _____

c. 2,4-D: N/A

BEE formulations:

_____27.6____% Active ingredient Current EPA Number 228-378-8959

DMA formulations:

_____% DMA Current EPA Number _____

14. For each herbicide proposed for use, list:

Herbicide Name: Navigate (excerpts of product labels appended).

Max. Application Rate (Lbs or gallons/acre)

200 lbs/acre max. label rate, likely rate 150 lbs/acre or less.

Target Concentrations 2.5 -3. 5 ppm a.e. in the outlet cove depending on hydrology at time of treatment (see note below).

Duration (expected time to non-detect) Maintain 0.5 ppm or greater for 3 days; expected time to non-detectable concentrations (0.004 ppm) approximately 30 days but will depend on hydrology, plant uptake, and sediment interactions.

Booster Treatments (number, interval) No booster treatment is anticipated.

Target Application date(s) one day for application sometime between August 25 and September 8.

If spatially variable rate, or other treatment variations, provide details on separate sheet.

NOTE: Table 1 in the General Permit Fact Sheet lists target concentration of 0.5-2.0 ppm for 1-3 days. We need an initial concentration above the typical range due to unique characteristics of this treatment, i.e, the hydrology of the cove and resultant flow through, potential for relatively high

product degradation rate given the shallow depth and associated light penetration, and sediment interactions. Final target concentration will largely depend on dam outflow at time of treatment. IASP staff will gauge the stream flow at different dam gate settings prior to treatment.

15. Herbicide Monitoring:

___ Will be in accordance with Part 1E1, Table 2 of the General Permit
__**X**_ Will require outlet monitoring
__X_ Will deviate from standard protocol (attach explanation and justification)
Deviation from standard protocol: Per the General Permit, the first post-treatment herbicide monitoring includes grabs at 0.5 m, mid-water column, and 1 m off the bottom. Given the depth of the outlet cove, where the treatment will occur, this monitoring scheme isn't appropriate. The maximum depth is 2.2 m while the mean depth is 1.1 m. We will take 0.5 m grabs from several areas in the cove and composite them into one sample for analysis.

16. Water Quality Monitoring:

__**X**__ Will be in accordance with Part 1E2 of the General Permit
_____ Will deviate from standard protocol (attach explanation and justification)

17. Plant Community Monitoring:

__**X**__ Will be in accordance with Part 1E3 of the General Permit
__**X**__ Will require outlet monitoring
___ Will deviate from standard protocol (attach explanation and justification)
Note: No rooted aquatic plants were found in the outlet stream in 2008 until the stream enters Great Pond. In 2009, a survey of Hatch Cove for Eurasian water milfoil (none was found) revealed the following native aquatic plants:

Vallisneria americana	*Eleocharis acicularis*	*Lobelia dortmanna*
Juncus pelocarpus	*Myriophyllum tenellum*	*Isoetes sp.*
Potamogeton gramineus	*Potamogeton perfoliatus*	*Eriocaulon aquaticum*
Utricularia sp.		

18. Rare, Threatened, or Endangered Species or Communities:

__**X**__ MDOC-MNAP has been consulted
__**X**__ MDIFW-NonGame Program has been consulted
__**X**__ MDIFW-Regional Biologists have been consulted
__**X**__ MASC, NOAA Fisheries, USFWS have been notified

If agency consultations indicate elements of concern, attach explanation and mitigation strategy
No elements of concern noted.

19. Public Water Supplies

__**X**__ DHHS-Drinking water program has been consulted re: existence of public water supplies
_____ Public water supplies exist
Identify Public water supplies: DHHS has no record of public drinking water supplies using Salmon Lake.
_____ Identified Public water supplies have been consulted
(Attach correspondence from each public water supply indicating consent and any conditions thereto. If consent is conditioned, indicate how conditions will be met.)

20. Public Notice

List municipalities, counties, and/or LURC Regional Offices to be notified by copy of NOI: Town of Belgrade

Date of press release or advertisement publication date and name of newspaper with general circulation in the area of the treatment program (attach copy): Legal Notice, *Morning Sentinel*, July 28-30, 2009.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature:_____ Date: July 28, 2009

Affiliation: Maine Dept. of Environmental Protection, Invasive Aquatic Species Program

Printed Name: John McPhedran

Keep a copy as record of permit. Send the form with attachments via certified mail to the Maine Department of Environmental Protection, 17 SHS, Augusta, ME 04333-0017 or as described in the General Permit. A copy of this NOI must be provided to the municipal office or County Commissioners' office and LURC Regional Office if any part of the waterbody is LURC jurisdiction. Authorization to discharge is valid for one year. Work carried out in violation of any applicable standard is subject to enforcement action.

This area for office use only.

NOI #	Date Received	Date Approved	Date Returned	Staff
#MEG				

Appended information: Statement of need to control Eurasian water milfoil (*Myriophyllum spicatum*) in Salmon Lake, Belgrade and Oakland, Maine

Maine Statute prohibits Eurasian water milfoil from being transported, offered for sale, or propagated in any way that will allow its establishment in waters of the State. Eurasian water milfoil is an aggressive plant and is widely believed to be one of the most problematic invasive aquatic plants in the US. Eurasian water milfoil is especially weedy and the subject of much control effort in the northern tier of states and in Canada where it fills recreation and fishing lakes, interferes with wildlife and degrades water quality.

Some experts believe that Eurasian water milfoil originated in Eurasia; others believe northern Africa. It occurs in Europe, Asia, India, Japan, Canada and the U.S. It is not clear exactly when the plant was introduced into the U.S. but it is now confirmed all of the U.S. except Hawaii (John Madsen, Mississippi State University, presentation at Northeast Aquatic Plant Management Society, January 2009).

Eurasian water milfoil is a submersed, rooted, perennial. Its stems can "top out" in 6.1 meters of water, but the plant is most often found in water 0.5 to 3.5 m deep. It often forms large infestations, becoming the most abundant submersed species in a locale. It spreads by regrowth from plant fragments, stolons, and root crowns. Fragments are created by human and other animal activity but also by "auto-fragmentation" that occurs with some aquatic plant species. Eurasian water milfoil is winter-hardy, able to overwinter in frozen lakes and ponds in northern states and Canada. Eurasian water milfoil is spread by transport of fragments from one water body to another, both by boats and other vehicles and by water currents.

A summer visitor to Salmon Lake discovered Eurasian water milfoil (*Myriophyllum spicatum*) in the outlet cove of the lake on Friday, August 1, 2008. Identification of the plant was confirmed on Monday, August 4, 2008 by staff the Maine Volunteer Monitoring Program and Maine DEP's IASP. The IASP initiated Maine's Rapid Response Plan after confirmation.

The IASP estimates that the Salmon Lake infestation was only one or two years old when discovered. Survey of Salmon Lake by Maine Natural Areas Program in 2004 revealed no Eurasian water milfoil in Salmon Lake, and annually dive/surface surveys near the ramp and into the outlet cove coordinated by the Belgrade Regional Conservation Alliance (BRCA) through 2007 (i.e., no survey was done in 2008) revealed no Eurasian water milfoil. It's possible that the BRCA 2007 survey did not detect the widely scattered infestation. Nevertheless, survey results, the widely scattered growth of the plant, and the fact that no flowering stalks have been observed suggest that the infestation is indeed relatively young.

See separate information appended to this NOI for chronological details of Maine DEP's response. Maine DEP has attempted to control the Eurasian water milfoil in the cove with diver removal and use of benthic barriers between August 2008 and July 2009. The last three dives of 2009 revealed an increasing number of plants with successive dives culminating in 119 plants on the July 1 dive, the most found in any dive to day.

If this infestation is not dealt with effectively, Salmon Pond will serve as a locus to spread Eurasian water milfoil throughout the Belgrade Lake system and possibly to other central Maine lakes. The IASP believes that aggressive action is warranted because the infestation is incipient and given the extraordinary downstream resources at risk with potential habitat for colonization.

Appended information: chronology of DEP IASP's response to the Salmon Lake (Belgrade) Eurasian water milfoil infestation
Staff notes by J. McPhedran

Chronology

2008

Friday, August 1, 2008
M. spicatum discovered in south end of Salmon Lake by Kurt Lakin.

Monday, August 4, 2008
Photos sent to DEP and VLMP (w/live specimen). M. Shannon left voicemail w/J. McPhedran at DEP. McPhedran called R. Hill (VLMP) who reported that plants were M. spicatum. McPhedran viewed pictures late Monday afternoon and concurred that plants were M. spicatum. McPhedran called M. Shannon late afternoon to inform her that he and R. Bouchard will survey the area on Tuesday, August 5, 2008.

Tuesday, Aug 5
Tuesday, Aug 5 email from Don Cameron, MNAP: Cameron confirms that plant is M. spicatum and adds: "Note that we did a survey of that pond in 04 and I'm sure we made a pass through that cove, I remember some patchy native plants and relatively shallow depth profiles, and obviously we didn't see the any Eurasian milfoil then."
McPhedran and Bouchard surveyed cove; see separate notes.
McPhedran informed John Boland, DIFW.

Weds, August 6
McPhedran informed Pat Robertson, Belgrade Town Office (Town Manager on vacation until 8/11/08) of the infestation and said we would cc the Town w/press release.
McPhedran informed Steve Dyer, Oakland Town Manager via voicemail.
McPhedran informed George Powell, DOC, via voicemail.

McPhedran spoke with Don Borman (465-2860), Salmon-McGrath Lake Association
Annual meeting is 630 pm on 8/7. Bouchard or McP will be there.

Friday, August 8 DIVE: 2 divers X 4 hours each (included net installation) = 8 hrs
DEP installed fragment net with residents' help and removed milfoil with SCUBA (2 divers) – in driving rain and wind. McPhedran has notes re plants found and removed in field book. Total amount removed = ~ 2/3 of a plastic tote BUT this was EWM mixed with natives, esp. Elodea. Best guess for number of EWM stems is ~60.

Monday, August 11
Surface Use Restriction starts and runs for 45 days until September 25. DEP installed "Area Closed" buoy at mouth of outlet cove, removed 1 fish tote's worth of plant fragments from net, and attached surface use restriction to sign at ramp. Only one EWM fragment found in tote. Also inspected part of outlet stream with landowner Bruce Trumper. DEP to walk the stream in near future.

Wednesday, August 13
Two crews surveyed likely habitat areas (i.e., coves). DEP (McP, Bouchard, Gregory) and UMF (Buckley plus 3 students). Found no EWM. Also removed 4 plants by snorkel and marked another 4-5 plants, all in outlet cove. Removed ½ fish tote from fragment net.

Thursday, August 14:
McPhedran walked outlet stream from Salmon Lake down to Great Pond. Notes on separate sheet (air photo). No EWM found; in fact, no aquatics growing in the stream at all until the last corner before entering Great Pond (Bouchard previously looked at these plants, all native). Did find native plants (*Elodea* and *Ranunculus*) lodged in debris, but no EWM.

Tuesday, Augusta 19 DIVE: 4 divers X 3.5 hours each = 14 hours
Divers were Blanchette, Courtemanch, Welch, and McPhedran. There does not appear to be EWM growing on the north side and in the center of the cove once you are approximately 1/3 of the way upstream from the outlet. Some tall EWM stems are mixed in with Elodea. Removed approximately ½ of a 5 gallon bucket of EWM. Best guess for # stems removed = approx 15.

Also on the 19th, dove into the lake beyond the cove and found no EWM. Installed 2nd closed area buoy and cleaned frag net.

Thursday, September 4, 2008 DIVE: 4 divers X 3 hours each = 12 hours
Divers were Blanchette, Hahnel, Gregory, Welch. Total removed: ~ 18 plants scattered in the south and west ¾ of the cove. All were scattered, solitary stems.

Friday, September 19, 2008
McGrath Pond plant survey with Roberta Hill and Christine Guerette from VLMP. Surveyed entire McGrath perimeter and found no EWM. VLMP recorded natives on VLMP field survey form. Survey time approx 6 hours (?) X 3 = 18 hours.

Tuesday, September 23, 2008 DIVE: 3 divers X 3 hours each = 9 hours
Divers McPhedran, Hahnel, Welch. More often than not we found plants at or near the buoys (initially installed to mark plant locations) suggesting that we are seeing new sprouts from remaining root systems. Plants ranged up to 3 ft long. Visibility poor due to algae growth. Total removed = approximately 25 stems. Most were on the south side of the cove.

Friday, October 3, 2008
Removed fragment net that had been installed on August 8 because the leaves collecting on the net were starting to weight down the net. We were concerned the net would fail with ever more leaves and storm events.

October 2008
Letter from Commissioner Littell to Don Borman in response to his letter. Conversations with Borman and Enright re next steps for Salmon EWM management.

November 13, 2008
McPhedran called Carla Carey at Kozy Cove about use of the "beaver lodge dock" close to the cove mouth. Carla needs to know if they can remove the beaver lodge – McP will investigate. Carla also wants to know if they could place another dock out by the beaver lodge dock. – McP

said yes, no state permit required if dock in 7 months or less (Carla knows that no town permit is required).

In August, Carla mentioned that other residents of the cove could use the beaver lodge dock. I asked Carla if this still might be possible in 2009. She said, yes. She is willing to do whatever she can to help. About 4 Kozy Cove clients bring their own boats each year, so clearly she needs dock space for them plus her own boats. But if the beaver lodge were removed and she installed one more dock, Carla feels that there would be enough space to accommodate other cove residents while satisfying her needs. Cove residents could use their campground and park in their lot.

November 17, 2008
Meeting with Salmon Lake McGrath Pond Association subcommittee

December 3, 2008
McPhedran and Bouchard covered 2 plants near cove mouth (also near 2 milk jug markers deployed by Enrights with nonwoven geotextile and bricks/rocks. Hopefully they'll stay through winter.

December 8, 2008
McPhedran called Don Borman to make sure McPhedran's summary of the November 17 meeting reflected his understanding. Borman said that Betsy Enright also took notes which are similar to McPhedran's. Borman also said their group has met a couple of times since the 17th. McPhedran asked Borman to send any suggestions/changes to his notes.

November and December 2008
Telephone calls and emails to Karla Carey of Kozy Cove and Kristen Chamberlain of DEP regarding removal of the beaver lodge that was built over one end of Karla's docks.

Salmon Lake Chronology

2009

April 2009
BRCA, MPSLA, and DEP met to discuss plans for 2009 on April 6.

DEP installed nets at cove mouth in April 2009.

May 8, 2009
DEP (Bouchard and McPhedran) installed net at outlet near dam. Also surveyed south side of cove from surface and found ~5 plants. Marked them w/buoys except where big buoy already is near Kozy Cove cottages.

Note for 2009: when surveying cove, mark every plant location with a small buoy.

May 18, 2009
BRCA, MPSLA, and DEP met to review plans for 2009 including public meeting on May 27.

May 19, 2009: Dive #1
5 divers, 10 am to 1 pm dive, 15 hours total dive time

EWM plants: 35 found in dam end of cove by USGS divers (2 divers), 26 by DEPdivers (2 divers) in ramp end of cove; 5th "diver" snorkeled shoreline
Total EWM plants found and removed: 61

Fist removal by divers of the season. Blaine Kopp and Hilary Neckles, USGS, joined Gregory, Hahnel, and McPhedran (McPhedran snorkeled only along south shore and 2/3 of north shore of cove due to regulator problem) in 3 hour dive. Found 61 plants all told, scattered but concentrated somewhat in east end near boat ramp and near outlet.

Objective of the dive was to survey as much of the outlet cove as possible, but to concentrate on south side of cove, and remove any plants found. We marked locations of most plants but ran out of buoys to mark each and every plant. Neckles said there wasn't a point in marking each and every plant since they are spread throughout the west end of the cove.

Removed 2 benthic barriers installed late in 2008. Reset and secured net at outlet.

May 22, 2009
McPhedran surveyed cove by kayak and marked additional plants. Also, Enrights surveyed cove over Memorial Day weekend and found/marked additional plants.

May 26, 2009: Dive #2
Objective: revisit all plant markers (note: additional markers installed by Enrights and McPhedran since 5/19 dive) and remove plants found.
2 divers, 2 hours diving, 4 hours total dive time
EWM plants found and removed: 27
Divers (McPhedran and Hahnel) concentrated on existing buoys; found/removed ~27 plants spread throughout cove, though patch found under submerged tree. Marked new plants too.

June 4, Thursday: Dive #3
Objective: Two dive teams start at either end of the cove and use compass to dive transects to conduct as comprehensive a survey as possible. Make sure to carefully inspect around plant marking buoys found on transects.
5 divers, 10 am to 1:30 pm, 17.5 hours total dive time
EWM plants: 15 plants found in dam end of cove (3 diver team), 24 plants found in ramp end of cove (2 diver team)
Total EWM plants found and removed: 39

Notes from 6/4:
1. New plant locations were marked with numbered buoys
2. When diving transects in the future, stop transect before entering very shallow water (stop at ~3 ft depth?) to avoid mucking up the water and reducing visibility.
3. Instead of sending divers into shallows, have these nearshore areas surveyed by either snorkelers and/or surface support in kayak or canoe. Surface support would have buoys for locating plants found in shallows.

Bouchard notes from 6/4 dive: he was surface for Suitor and Hahnel near boat ramp.
Plants removed
1 in easternmost area with many buoys

1 removed at Buoy #11
Large clump between buoys 12 and 10. Removed and clamshell barrier placed.
1 removed near buoy cluster 50 ft west of first fallen tree,
Several small plants removed at fallen maple == Bouy #14
Total plants removed estimated at ca 24

June 17, Thursday: Dive #4
Divers: McP/Welch, Blanchette/Gregory, Hahnel snorkeling near shore
Dove about 10:15 to 1:15, 15 total hours dive time.
Total EWM plants found and removed: 79 (58 plants plus 21 sprouts near barrier installed 6/4).
Blanchette also dove outside cove for 15 mins and found no EWM.
Put down 1 steel barrier near milk jug by former Kozy Cove dock location.

July 1, 2009, Wednesday: Dive #5
Divers: Blanchette/McP at dam end, Hahnel/Courtemanch/Suitor at ramp end.
Dove 10:15-1:15. 4 divers @3 hours and 1 diver @2 hours = 14 hours total
Total EWM plants found: 119 plants; 71 at ramp end and 48 at outlet end.

Native plants seen in the outlet cove:

Myriophyllum tenellum	*Pontedaria cordata*	*Utricularia macrorhiza*
Potamogeton pusillus	*Potamogeton robbinsii*	*Potamogeton spirillus*
Potamogeton amplifolius	*Potamogeton zosteriformis*	*Eleocharis robbinsii*
Eleocharis acicularis	*Potamogeon perfoliatus*	*Nuphar variegata*
Sagittaria cf *graminea*	*Isoetes sp*	*Vallisneria americana*
Elodea canadensis	*Nitella sp*	*Sparganium sp*
Ceratophyllum demersum	*Ranunculus aquatilis*	*Bidens beckii*

July 2, 2009
Bouchard and McP added additional net to prevent frags moving downstream. Existing net headrope was overwhelmed by high water.

July 7, 2009
Bouchard and McP reconfigured nets at Salmon outlet, including adding a net. Moved nets upstream and away from dam in hopes that nets will better withstand high flows.
McP dove 2.5 hours as part of net reconfiguration.

July 9, 2009
Salmon Lake outlet survey in Hatch Cove/Great Pond– no EWM found.
Divers: Fenn/McP, Blanchette/Hahnel, Suitor/Courtemanch.
Dove 10:15-12:15: 12 hours total dive time.
Surface surveying by: Richard Sharf/Mike Bernstein, Maggie Shannon/Alan Charles, Roy Bouchard/Paul Gregory/Jason Bulay, Judy Potvin/Leslie Latt.
Native plants: Val ame, Jun pel, Ele aci, Myr ten, Pot gra, Pot per, Lob dor, Iso sp, Eri aqu, Utr sp.

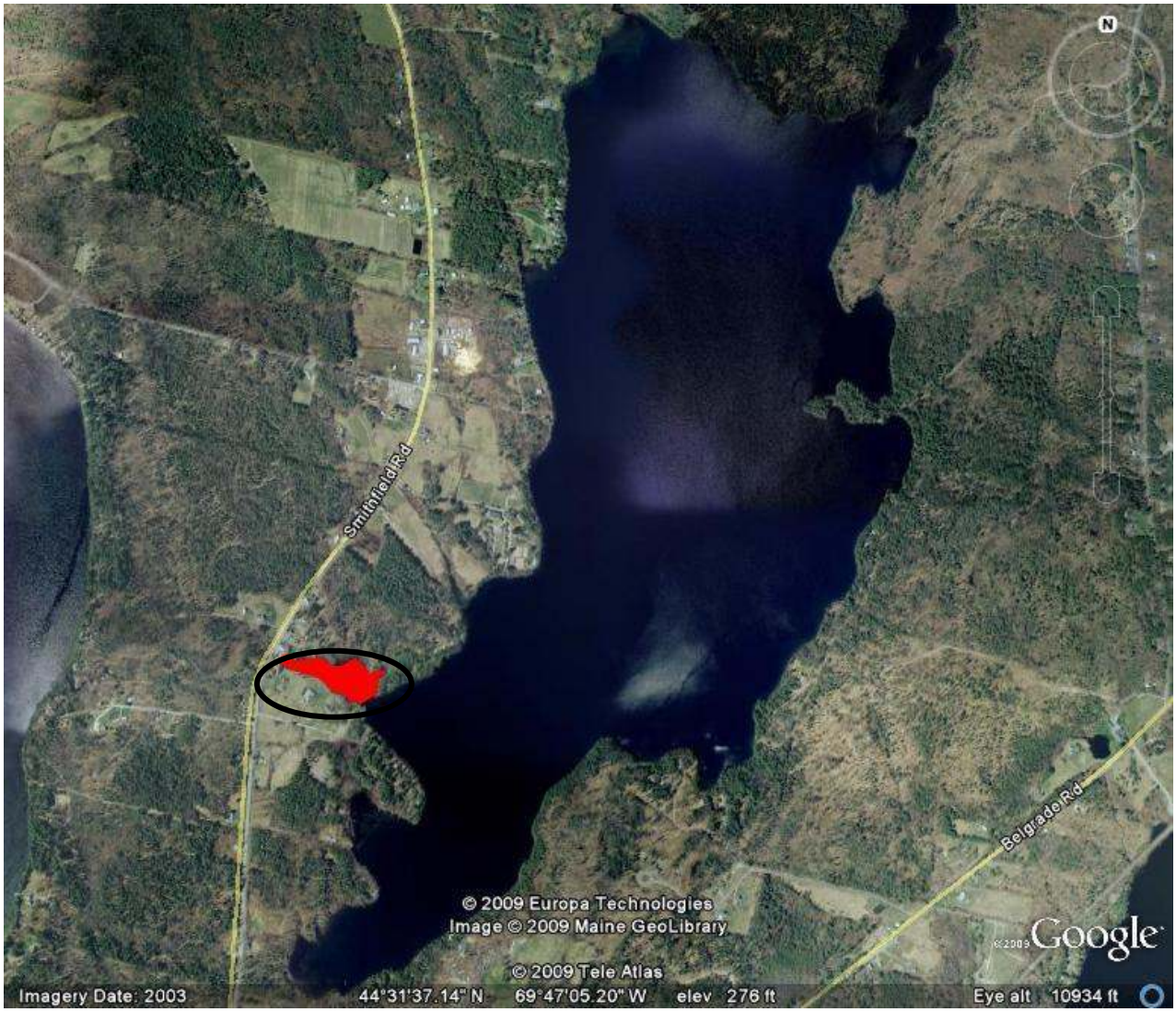

Figure 1. Aerial Photo showing Salmon Lake and indicating treatment site (Salmon Lake outlet cove) in red (or lake within oval). Source: Google Earth.

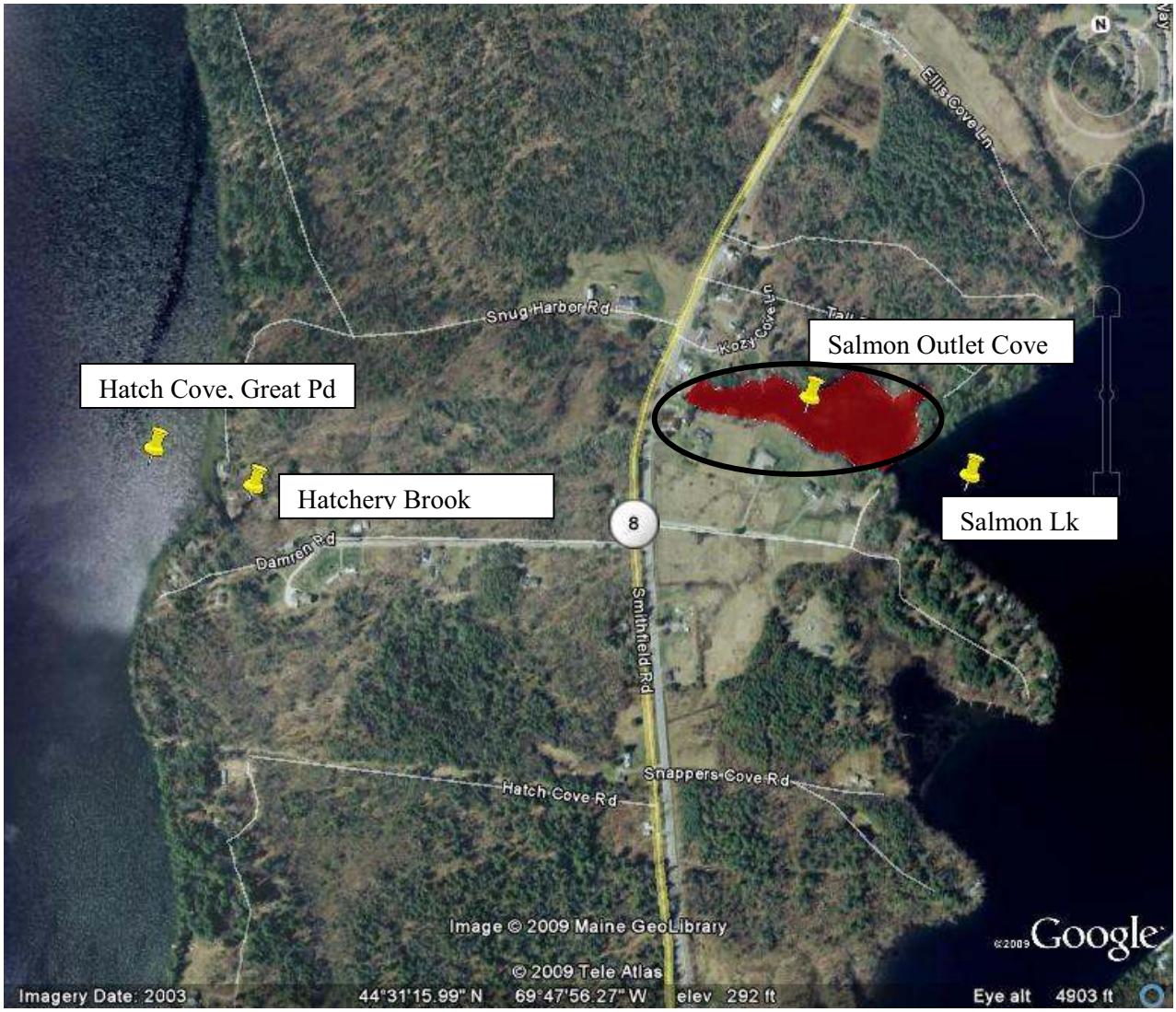

Figure 2. Herbicide monitoring Stations in Salmon Lake, Hatchery Brook, and Great Pond. Red shading (or lake within oval) indicates treatment area, i.e., Salmon Lake outlet cove. Image source: Google Earth.

Product Label: Please excuse the formatting below. A more legible label is available at http://www.appliedbiochemists.com/products/navigate.htm

NAVIGATE®

A SELECTIVE HERBICIDE FOR CONTROLLING CERTAIN UNWANTED AQUATIC PLANTS
ACTIVE INGREDIENTS:
Butoxyethyl Ester of 2,4-Dichlorophenoxyacetic Acid*..... 27.6%
INERT INGREDIENTS:
..... 72.4%
TOTAL 100.0%
*Isomer Specific AOAC Method, Equivalent to 2,4-Dichlorophenoxyacetic Acid 19.0%
EPA Reg. No. 228-273 –8959 EPA Est. No. 228-IL-1

KEEP OUT OF REACH OF CHILDREN

CAUTION

For Chemical Emergency, Spill, Leak, Fire, Exposure or Accident Call Chemtrec Day or Night 1-800-424-9300

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed, absorbed through skin, or inhaled. Causes eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing dust. When handling this product, wear chemical resistant gloves. Wash thoroughly with soap and water after handling.
When mixing, loading, or applying this product or repairing or cleaning equipment used with this product, wear eye protection (face shield or safety glasses), chemical resistant gloves, long-sleeved shirt, long pants, socks and shoes. It is recommended that safety glasses include front, brow and temple protection.
Wash hands, face and arms with soap and water as soon as possible after mixing, loading, or applying this product. Wash hands, face and arms with soap and water before eating, smoking or drinking. Wash hands and arms before using toilet. After work, remove all clothing and shower using soap and water. Do not reuse clothing worn during the previous day's mixing and loading or application of this product without cleaning first. Clothing must be kept and washed separately from other household laundry. Remove saturated clothing as soon as possible and shower.

FIRST AID:

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.
IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
IF IN EYES: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

ENVIRONMENTAL HAZARDS

This product is toxic to fish. Drift or runoff may adversely affect fish and non-target plants. Do not apply to water except as specified on this label. Do not contaminate water when disposing of equipment washwaters. Unless an approved assay indicates the 2,4-D concentration is 100 ppb (0.1 ppm) or less, or, only growing crops and noncrop areas labeled for direct treatment with 2,4-D will be affected, do not use water from treated areas for irrigating plants or mixing sprays for agricultural or ornamental plants.Unless an approved assay indicates the 2,4-D concentration is 70 ppb (0.07 ppm) or less, do not use water from treated areas for potable water (drinking water).
Clean spreader equipment thoroughly before using it for any other purposes. Vapors from this product may injure susceptible plants.
Most cases of ground water contamination involving phenoxy herbicides such as 2,4-D have been associated with mixing/loading and disposal sites. Caution should be exercised when handling 2,4-D pesticides at such sites to prevent contamination of ground water supplies. Use of closed systems for mixing or transferring this pesticide will reduce the probability of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent ground water contamination.

DIRECTIONS FOR USE
IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH ITS LABELING.

READ THIS ENTIRE LABEL BEFORE USING THIS PRODUCT. USE STRICTLY IN ACCORDANCE WITH LABEL PRECAUTIONARY STATEMENTS AND DIRECTIONS.
GENERAL PRECAUTIONS AND RESTRICTIONS
Do not use in or near a greenhouse.
OXYGEN RATIO
Fish breathe oxygen in the water and a water-oxygen ratio must be maintained. Decaying weeds use up oxygen, but during the period when NAVIGATE® should be used, the weed mass is fairly sparse and the
weed decomposition rate is slow enough so that the water-oxygen ratio is not disturbed by treating the entire area at one time.
If treatments must be applied later in the season when the weed mass is dense and repeat treatments are needed spread granules in lanes, leaving buffer strips which can then be treated when vegetation in
treated lanes has disintegrated. During the growing season, weeds decompose in a 2 to 3 week period following treatment.
Buffer lanes should be 50 to 100 feet wide. Treated lanes should be as wide as the buffer strips.
WATER pH
Best results are generally obtained if the water to be treated has a pH less than 8. A pH of 8 or higher may reduce weed control. If regrowth occurs within a period of 6 to 8 weeks, a second application may be
needed.
PERMIT TO USE CHEMICALS IN WATER
In many states, permits are required to control weeds by chemical means in public water. If permits are required, they may be obtained from the Chief, Fish Division, State Department of Conservation or the
State Department of Public Health.
GENERAL INFORMATION
NAVIGATE is formulated on special heat treated attaclay granules that resist rapid decomposition in water, sink quickly to lake or pond bottoms and release the weed killing chemical in the critical root zone
area.
This product is designed to selectively control the weeds listed on the label. While certain other weeds may be suppressed, control may be incomplete. Reduced control may occur in lakes where water
replacement comes from bottom springs.
WHEN TO APPLY
For best results, spread NAVIGATE in the spring and early summer, during the time weeds start to grow. If desired, this timing can be checked by sampling the lake bottom in areas heavily infested with weeds
the year before.
If treatments are delayed until weeds form a dense mat or reach the surface, two treatments may be necessary. Make the second treatment when weeds show signs of recovery.
Treatments made after September may be less effective depending upon water temperatures and weed growth.
Occasionally, a second application will be necessary if heavy regrowth occurs or weeds reinfest from untreated areas.
HOW TO APPLY
FOR LARGE AREAS: Use a fertilizer spreader or mechanical seeder such as the Gerber or Gandy or other equipment capable of uniformly applying this product. Before spreading any chemical, calibrate your
method of application to be sure of spreading the proper amount. When using boats and power equipment, you must determine the proper combination of (1) boat speed (2) rate of delivery from the spreader,
and (3) width of swath covered by the granules.
FOR SMALL AREAS: (Around Docks or Isolated Patches of Weeds): Use a portable spreader such as the Cyclone seeder or other equipment capable of uniformly applying this product. Estimate or measure
out the area you want to treat. Weight out the amount of material needed and spread this uniformly over the area. More uniform coverage is obtained by dividing the required amount in two and covering the area
twice, applying the second half at right angles to the first.
Use the following formula to calibrate your spreader's delivery in pounds of NAVIGATE PER MINUTE:
Miles per hour X spreader width X pounds per acre = pounds per minute
495
Example: To apply 100 pounds of NAVIGATE per acre using a spreader that covers a 20 foot swath from a boat traveling at 4 miles per hour, set the spreader to deliver 16 pounds of NAVIGATE granules per
minute.
4 mph x 20 feet x 100 Lbs./A = 16 Lbs/Min.
495

AMOUNTS TO USE
Rates of application vary with resistance of weed species to the chemical, density of weed mass at time of treatment, stage of growth, water depth, and rate of water flow through the treated area. Use the higher
rate for dense weeds, when water is more than 8 feet deep and where there is a large volume turnover.
NAVIGATE
POUNDS
PER ACRE
NAVIGATE
POUNDS PER
2000 SQ. FT.
SUSCEPTIBLE WEEDS
Water Milfoil (Myriophylium spp.)
Water stargrass (Heteranthera dubia)
100 TO 200
5
SLIGHTLY TO MODERATELY
RESISTANT WEEDS
Bladderwort (Utriculana spp.)

White water Lily (Nymphaea spp.)
Yellow water lily (Nuphar spp.)
Or spatterdock*
Water shield (Brasenia spp.)
Water chestnut (Trapa natans)
Coontail* (Ceratophylum
Demersum)
*Repeat treatments may be needed.
150 to 200
7-1/2 to 10
STORAGE
Always use original container to store pesticides in a secured warehouse or storage building. Do not store near seeds, fertilizers, insecticides or fungicides. Do not stack more than two pallets high. Do not
contaminate water, food or feed by storage or disposal. It is recommended that a SARA Title III emergency response plan be created for storage facilities. Do not transport in passenger compartment of any
vehicle.
PESTICIDE DISPOSAL
Pesticide wastes are toxic. If container is damaged or if pesticide has leaked, clean up all spilled material. Improper disposal of excess pesticide, spray mixtures or rinsate is a violation of Federal law and may
contaminate groundwater. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at
the nearest EPA Regional Office for guidance.
CONTAINER DISPOSAL
Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay away from smoke.
NAVIGATE is a trademark of Applied Biochemists
NET WT. 50 LBS. (22.68 KG) 13529
LIMITED WARRANTY AND DISCLAIMER
The manufacturer warrants (a) that this product conforms to the chemical description on the label; (b) that this product reasonably fit for the purposes set forth in the directions for use when it is used in
accordance with such directions; and (c) that the directions, warning and other statements on the label are based upon responsible experts' evaluation of reasonable tests of effectiveness, of toxicity to laboratory
animals and to plants, and of residues on food crops and upon reports of field experience. Tests have not been made on all varieties or in all states or under all conditions. THE MANUFACTURER NEITHER
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MANNER WHICH IS INCONSISTENT WITH THE LABEL DIRECTIONS, WARNINGS OR CAUTIONS.
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MANUFACTURED FOR:
applied biochemists
GERMANTOWN, WI 53022-4799
1-800-558-5106

Legal Notice as appears in the Morning Sentinel newspaper; ad purchased for publication on July 28-30, 2009.

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION TO FILE NOTICE OF INTENT UNDER GENERAL PERMIT FOR APPLICATION OF AQUATIC HERBICIDES FOR THE CONTROL OF INVASIVE AQUATIC PLANTS

The Maine Department of Environmental Protection, Division of Environmental Assessment (DEP DEA), State House Station 17, Augusta, Maine 04333 intends to file a Notice of Intent (NOI) with the Department of Environmental Protection (DEP), Division of Water Quality Management. The application is for the discharge of granular formulation of aquatic herbicide Navigate™ (active ingredient 2,4-D) from surface craft into a six-acre cove of Salmon Lake, Belgrade, Maine on August 25 or after up to 28 days. The treatment will be completed in one day.

The treatment goal is to prevent the spread of the invasive aquatic plant Eurasian water milfoil (*Myriophyllum spicatum*) to other lakes and ponds and to allow DEP DEA to effectively control the growth with mechanical means.

Upon treatment(s), DEP DEA will post the following advisories: not to swim for three days, not to drink, wash or irrigate with surface water taken directly from or within 1,000 feet of treated cove, Hatchery Brook, and 500 feet of Hatch Cove in Great Pond until notified otherwise by the applicant. Email *milfoil@maine.gov* for exact dates of NOI submission and approval and herbicide application. More information and precautionary notes on human water consumption, water contact, livestock use and irrigation is available from the DEP DEA Invasive Aquatic Species Program Coordinator, Maine DEP, State House Station 17, Augusta, ME 04333 (207-287-3901).

The application will be filed on or about July 27, 2009 and will be available for public inspection at DEP's Augusta office during normal business hours. A copy may also be seen at the municipal offices in Belgrade, Maine.

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